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| 10/582,563 | 06/12/2006 | Hiroyuki Nakata | NGB-40647 | 1588 |
| 53054 7590 09/04/2009 PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108 | | | | |
| EXAMINER NGUYEN, HUNG D | | | | |
| ART UNIT 3742 | | PAPER NUMBER | | |
| NOTIFICATION DATE 09/04/2009 | | DELIVERY MODE ELECTRONIC | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/582,563

Applicant(s)

NAKATA ET AL.

Examiner

HUNG NGUYEN

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB003)
Paper No(s)/Mail Date 6/10/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is responsive to the amendment filed on 6/5/2009. As directed by the amendment: claims 3 and 8 have been canceled and new claims 11-16 have been added. Thus, claims 1-2, 4-7 and 9-16 are presently pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claim 2, there is insufficient antecedent basis for "the separation control system" recited in line 2 in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 6-7 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesono et al. (JP Pub. 2002-205169) (previously cited) in view of Mori (US Pat. 4,445,022).

7. Regarding claims 1-2 and 6-7, Uesono et al. discloses a welding systems and a welding method including: a wire feeding unit WM (Fig. 2) which feeds a welding wire 1 (Fig. 2) to a welding torch 4 (Fig. 2); an actuator RM (Fig. 2) which holds the welding torch 4 (Fig. 2) and moves the welding torch; a controller RC (Fig. 2) which has a position control system and drive-controls the actuator RM (Fig. 2); and a welding power supply PS (Fig. 2) unit which applies weld output between a workpiece 2 (Fig. 2) and the welding wire 1 (Fig. 2), wherein the welding torch is moved by the actuator in a direction separating from the workpiece thereby to control the velocity of the welding wire for the workpiece except for the controller includes, separately from the position control system, a dedicated separation control system which moves the actuator in the direction where the welding torch is separated from the workpiece; and the dedicated separation control system is always connected to the position control system, and a velocity command relating to a welding torch pull-up operation is outputted to the dedicated separation control system only when the welding torch is moved in the direction separating from the workpiece. Mori discloses a controller includes, separately from the position control system 40 (Fig. 5), a dedicated separation control system 44 (Fig. 5) which moves the actuator (Fig. 5) in the direction where the welding torch is separated from the workpiece 22 (Fig. 5); and the dedicated separation control system 44 (Fig. 5) is always connected to the position control system 40 (Fig. 5), and a velocity command relating to a welding torch pull-up operation is outputted to the dedicated separation control system only when the welding torch is moved in the direction separating from the workpiece (Col. 8, Lines 31-46). It would have been obvious to one

of ordinary skill in the art at the time of the invention was made to modify Uesono et al. to have the controller includes, separately from the position control system, a dedicated separation control system which moves the actuator in the direction where the welding torch is separated from the workpiece; and the dedicated separation control system is always connected to the position control system, and a velocity command relating to a welding torch pull-up operation is outputted to the dedicated separation control system only when the welding torch is moved in the direction separating from the workpiece, as taught by Mori, for the purpose of having a drive control system for moving the robot arm.

8. Regarding claims 11 and 14, Uesono et al. further discloses the welding torch 4 (Fig. 7) is moved by the actuator in the direction separating from the workpiece 2 (Fig. 7) while the welding 1 (Fig. 7) is fed toward the workpiece (Par. 22-23).

9. Regarding claims 12 and 15, Uesono et al. discloses the controller RC (Fig. 6) continues to output the velocity command MC (Fig. 6) relating to the welding torch pull-up operation to the separation control system RM (Fig. 6) until the welding torch is moved in a predetermined height after the welding wire contacts the workpiece (Par. 22-23) except for the dedicated separation control system. Mori discloses the dedicated separation control system 44 (Fig. 5) for the torch pull-up operation. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Uesono et al. to have the dedicated separation control system, as taught by Mori, for the purpose of having the drive control system for moving the robot arm.

10. Regarding claims 13 and 16, Uesono et al. discloses substantially all features of the claimed invention as set forth above except for the velocity command relating to the welding torch pull-up operation outputted to the dedicated separation control system is separate from a velocity command in a usual operation outputted to the position control system. Mori discloses the velocity command relating to the welding torch pull-up operation outputted to the dedicated separation control system is separate from a velocity command in a usual operation outputted to the position control system (Col. 8, Lines 31-46). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Uesono et al. to have the velocity command relating to the welding torch pull-up operation outputted to the dedicated separation control system is separate from a velocity command in a usual operation outputted to the position control system, as taught by Mori, for the purpose of having the drive control system for moving the robot arm.

11. Claims 4-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesono et al. (JP Pub. 2002-205169) (previously cited) in view of Mori (US Pat. 4,445,022) and further view of Hashimoto et al. (JP 11282540).

12. Regarding claims 4 and 9, the combined references disclose substantially all features of the claimed invention as set forth above except for a method of preventing erroneous collision detection within a multi-articulated robot driven through a reduction gear by a motor utilizing the welding system comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the

motor; judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold; and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command acceleration of the robot operation is greater than a predetermined value. Hashimoto et al. discloses a method of preventing collision comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the motor (Par. 34); judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold (Par. 35-36); and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command acceleration of the robot operation is greater than a predetermined value (Par. 39 and 52-54). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify in the combined references to have a method of preventing erroneous collision detection within a multi-articulated robot driven through a reduction gear by a motor utilizing the welding system comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the motor; judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold; and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command acceleration of the robot operation is greater than a predetermined value, as

taught by Hashimoto et al. for the purpose of having a collision judgment processing of robotic control.

13. Regarding claims 5 and 10, the combined references disclose substantially all features of the claimed invention as set forth above except for the threshold for detection of collision is increased, and this state where the threshold is increased is kept for the predetermined time in case that the command acceleration of the robot operation is greater than the predetermined value. Hashimoto et al. discloses the threshold for detection of collision is increased, and this state where the threshold is increased is kept for the predetermined time in case that the command acceleration of the robot operation is greater than the predetermined value (Par. 52-54). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify in the combined references to have the threshold for detection of collision is increased, and this state where the threshold is increased is kept for the predetermined time in case that the command acceleration of the robot operation is greater than the predetermined value, as taught by Hashimoto et al. for the purpose of a collision judgment processing of robotic control.

14. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kato et al. (US Pat. 6,298,283) discloses an industrial robot capable of preventing re-collision after colliding with an obstacle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 8:30AM-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/
Examiner, Art Unit 3742
8/31/2009

/TU B HOANG/
Supervisory Patent Examiner, Art Unit 3742